



ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE CANADA LYNX

Final Economic Analysis | October 31, 2006

prepared for:

Division of Economics

U.S. Fish and Wildlife Service

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EXECUTIVE SUMMARY

1. The purpose of this report is to identify and analyze the potential economic impacts associated with the proposed critical habitat designation for the United States distinct population segment of the Canada Lynx (*Lynx Canadensis*) (hereafter, "lynx"). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's (Service) Division of Economics.
2. On November 9, 2005, the U.S. Fish and Wildlife Service (Service) published a proposed critical habitat designation for the lynx, which was clarified in a subsequent notice published on February 16, 2006.¹ This proposed rule included lands proposed for designation and lands considered for exclusion from the designation (collectively referred in this analysis as the "study area"). The study area includes 18,031 square miles (46,699 square km) of land in Maine, Minnesota, Montana, Idaho and Washington.
3. This final economic analysis analyzes the proposed designation as described in the proposed rule. This analysis does not reflect changes to the proposed critical habitat designation made in the final rule. Consequently, description of the habitat designation in the final rule may differ from maps and figures presented in this analysis. Changes to this document from the draft economic analysis include a revised development analysis in Section 4, an updated Initial Regulatory Flexibility Analysis in Appendix C, and other minor corrections and clarifications.²
4. The study area is subdivided into four units. Much of the landscape is remote high elevation undeveloped lands, over 80 percent of which is currently managed for timber purposes. The majority of the study area is private (73 percent); the remainder includes 11 percent Federal, 15 percent State, and one percent tribal ownership.³ All of the Tribal and most of the Federal lands are proposed for exclusion. A graphical depiction of the study area is provided in Exhibits ES-7 through ES-10.
5. This analysis quantifies economic impacts of lynx conservation efforts associated with the following land uses: 1) timber activities, 2) recreation, 3) public and conservation land management, 4) transportation, 5) mining, 6) tribal activities, and 7) administrative costs associated with section 7 consultation. Additionally, this analysis provides

¹ 70 FR 68294 - 68328 and 71 FR 8258 - 8264.

² For a detailed discussion of public comments on the draft economic analysis and associated responses, please see the responses to public comment section of the Final Rule.

³ 71 FR 8258.

information on the full option values of development and grazing activities in the study area.

6. The primary assumption applied in this analysis is that all landowners will manage their lands in accordance with the lynx conservation guidelines described in the Lynx Conservation Assessment Strategy (LCAS).⁴ This conservation strategy was developed by the Service in cooperation with Federal agencies to identify land uses that may represent a conservation threat to the lynx, and make recommendations to mitigate those threats where possible. While this strategy has not been employed by private landowners in the past, this analysis assumes that it represents the best available science regarding the conservation needs of the lynx, and therefore serves as an indicator of how habitat may be managed for the benefit of the lynx in the future.
7. Exhibit ES-1 and the Key Findings highlighted below summarize the results of the economic analysis.

EXHIBIT ES-1. SUMMARY OF POST-DESIGNATION IMPACTS (2006 - 2025)

IMPACT	UNDISCOUNTED	7% DISCOUNT RATE	3% DISCOUNT RATE
<i>Areas Proposed for Designation</i>			
Total Economic Impacts	\$882 million - \$1.66 billion	\$806 million - \$1.03 billion	\$831 million - \$1.18 billion
Annualized Impacts	-	\$58.9 million - \$78.3 million	\$29.6 million - \$50.7 million
<i>Areas Considered for Exclusion</i>			
Total Economic Impacts	\$10.9 million - \$14.1 million	\$8.26 million - \$9.64 million	\$9.54 million - \$11.4 million
Annualized Impacts	-	\$780,000 - \$910,000	\$641,000 - \$767,000

⁴ Ruediger, B., et. al. 2000. Canada lynx conservation assessment and strategy 2nd Edition. August 2000 (as amended Oct. 23-24, 2001, May 6-8, 2003 and Nov. 12-13, 2003). USDA Forest Service, US Fish and Wildlife Service, Bureau of Land Management, and National Park Service. Forest Service Publication #R1-00-53.

KEY FINDINGS

Total Future Impacts: The draft economic analysis forecasts future costs associated with lynx conservation efforts in areas proposed for designation to be \$882 million to \$1.66 billion (undiscounted dollars) over the next 20 years. The present value of these impacts, applying a three percent discount rate, is \$831 million to \$1.18 billion (\$29.6 million to \$50.7 million annualized); or \$806 million to \$1.03 billion, using a seven percent discount rate (\$58.9 million to \$78.3 million annualized).

Quantified Impacts: Timber-related impacts comprise the greatest percentage, 48.7 percent at the high end (undiscounted dollars), of the total quantified impacts in areas proposed for critical habitat designation. Development-related impacts comprise another 46.4 percent at the high end (undiscounted dollars), of the total quantified impacts in areas proposed for critical habitat designation. Impacts to transportation comprise another three percent. At the low end, however, development impacts comprise 80 percent of total forecast impacts. The following impacts by activity are for areas proposed for designation, and do not include areas considered for exclusion from critical habitat.

- **Timber management:** Timber impacts are estimated for two scenarios. Under Scenario 1, impacts to silvicultural activities are \$117 million (undiscounted dollars). This includes impacts resulting from implementation of existing lynx management plans, performing project modifications (including road decommissioning or building alternative road access to avoid crossing Federal land), and developing lynx management plans. Under Scenario 2, impacts include additional costs of restricting pre-commercial thinning. Impacts under Scenario 2 are forecast to be \$808 million (undiscounted dollars) over a 20-year period.
- **Development:** Impacts to development activities are estimated assuming timber-related lynx conservation efforts may be applicable to development as described in Section 4 of this analysis. Accordingly, development of a watershed (applied as a proxy for a lynx home range in this analysis) is assumed to be allowed up to a 15 percent threshold. Beyond this threshold, any forecast development is assumed to be precluded. Total impacts of restricting development across the areas proposed for designation are estimated to be \$706 million to \$770 million.
- **Recreation:** Total costs associated with impacts to recreation activities are estimated to range from \$1.05 million to \$3.46 million over 20 years (undiscounted dollars), including reduced consumer surplus associated with increased congestion of snowmobiling trails, and costs of hunter and trapper education.
- **Public Land Management and Conservation Planning:** Costs related to lynx research and monitoring, and development of lynx management plans on public and conservation lands, total approximately \$12.8 million over 20 years (undiscounted dollars).
- **Transportation, Utilities and Municipal:** Impacts to these activities include implementing lynx conservation efforts for road and utility construction and maintenance projects, and dam relicensing activities. Impacts are estimated to range from \$34.9 million to \$55.1 million over the next 20 years (undiscounted dollars). Lynx conservation efforts include erecting wildlife crossings or fencing, monitoring, mapping and reporting, and bridge lengthening.
- **Mining:** Future mining projects in Unit 2 are forecast to implement lynx monitoring and management at an impact of \$430,000 over the next 20 years (undiscounted dollars); these impacts include relocations of stock piles and monitoring and reporting for the species.
- **Administrative Costs:** Administrative costs of section 7 consultation for all affected activities are estimated to be \$9.03 million over 20 years (undiscounted dollars).

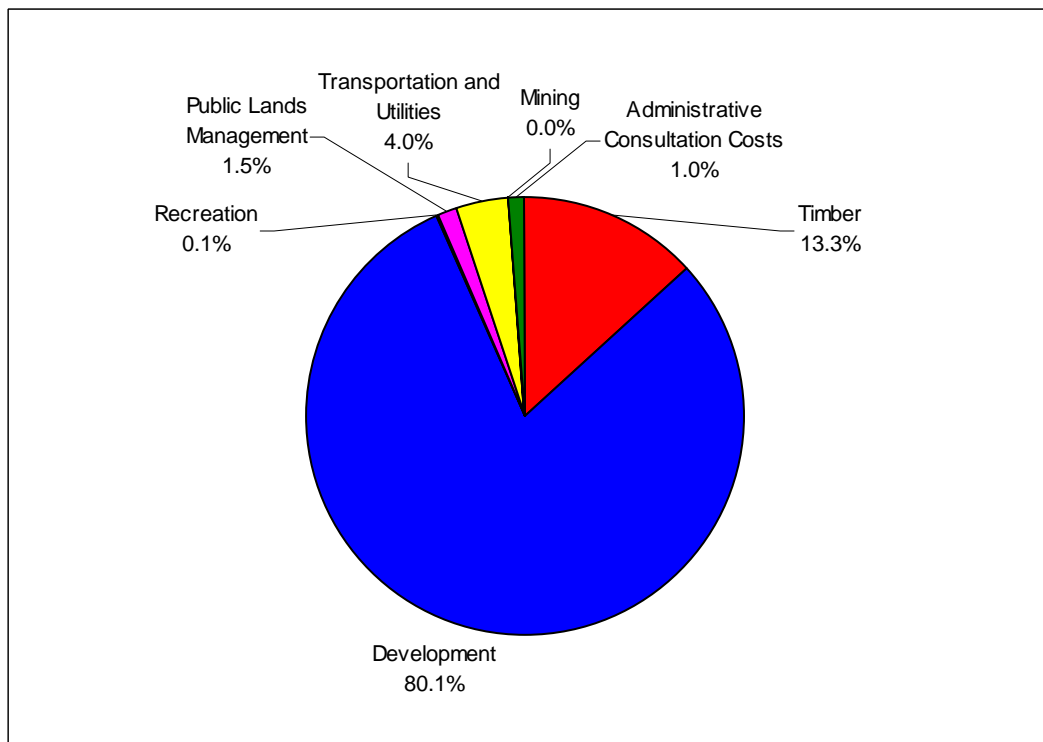
Land Use Activities for Which Impacts are Not Quantified:

- **Mining:** Two mines exist with planned expansions within the study area in Unit 2. The full combined resource values of these mines is \$864 million. A recent biological opinion on one of these mines did not preclude the mining activity as described in Section 8 of this analysis.
- **Grazing:** Cattle grazing occurs in Units 3 and 4 of the study area. The value of these cattle are estimated to be \$1.95 million.

Critical Habitat Subunit with Highest Impacts: The subunit with the largest projected impacts (high end estimate in undiscounted dollars) is private unknown landowner lands in Unit 2: Minnesota; impacts in this subunit (\$766 million) constitute approximately 46.2 percent of the total estimated impacts in the 27 subunits proposed for designation. Of the forecast impacts in this subunit, 88.5 percent are associated with impacts to future development activities. The subunit with the second highest projected impacts, 15.2 percent, are private timberlands in Maine.

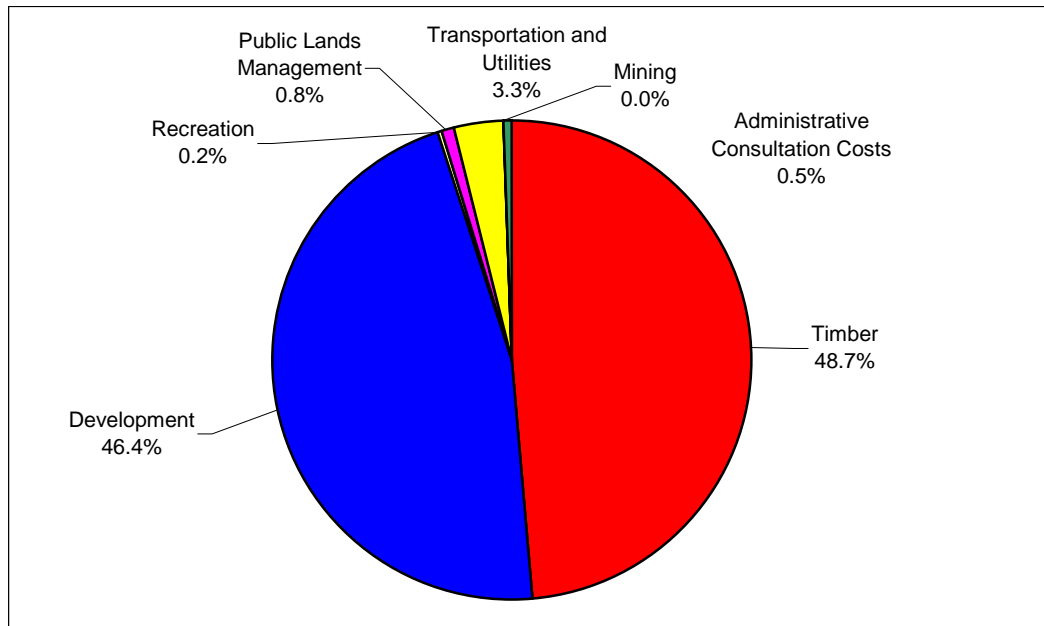
8. In addition to the impacts quantified in Exhibit ES-1, this analysis provides information on the full resource values of mining and grazing in the study area absent information to estimate specific impacts to these activities associated with lynx conservation.
- Two mines exist with planned expansions within the study area in Unit 2. The full combined resource values of these mines is \$864 million. The locations of the mines are identified in Exhibit ES-8.⁵
 - Cattle grazing occurs in Units 3 and 4 of the study area. The value of these cattle are estimated to be \$1.95 million. Grazing lands within the study area are highlighted in Exhibits ES-9 and ES-10.
9. Exhibits ES-2 and ES-3 highlight post-designation impacts by activity in areas proposed for critical habitat designation.

EXHIBIT ES-2 POST-DESIGNATION IMPACT BY ACTIVITY (LOW END UNDISCOUNTED COST ESTIMATE) IN AREAS PROPOSED FOR DESIGNATION



⁵ Since the publication of the Draft Economic Analysis, the Service completed a Biological Opinion on the Northshore Mine (U.S. Fish and Wildlife Service, June 30, 2006, Biological Opinion Northshore Mine Expansion St. Louis County, Minnesota). Conservation efforts included in the Biological Opinion for this project included monitoring and reporting on the species, winter track surveys, and development of a mining lands reclamation plan using native trees, forbs, and grasses.

EXHIBIT ES-3. POST-DESIGNATION IMPACT BY ACTIVITY (HIGH END UNDISCOUNTED COST ESTIMATE) IN AREAS PROPOSED FOR DESIGNATION



10. Exhibits ES-4 and ES-5 rank the subunits proposed for critical habitat designation in order of level of expected impact. Information describing the economic impacts by subunit is provided in Exhibit ES-6. More detailed information describing estimated impacts by subunit and activity is provided in Appendix F.

EXHIBIT ES-4. SUBUNITS RANKED BY LEVEL OF IMPACT (LOW END, UNDISCOUNTED)

SUBUNIT	ESTIMATED LOW END IMPACTS (UNDISCOUNTED)	PERCENT OF TOTAL LOW END IMPACTS (UNDISCOUNTED)
Unit 2: Unknown Landowner	\$642,000,000	72.9%
Unit 3: Unknown landowner	\$50,700,000	5.8%
Unit 3: Montana Dept. of Natural Resources	\$44,200,000	5.0%
Unit 1: Private Timber Lands	\$39,000,000	4.4%
Unit 4: Washington Dept of Natural Resources	\$21,000,000	2.4%
Unit 2: Private Timber Lands	\$17,700,000	2.0%
Unit 1: Unknown Landowner	\$15,600,000	1.8%
Unit 2: Private Mining Lands	\$11,900,000	1.4%
Unit 2: Superior National Forest	\$10,000,000	1.1%
Unit 1: Conservation NGO	\$6,780,000	0.8%
Unit 2: Minnesota Dept. of Natural Resources	\$6,450,000	0.7%
Unit 3: Private Timber Lands	\$6,420,000	0.7%
Unit 3: Montana Fish, Wildlife, and Parks	\$2,650,000	0.3%
Unit 1: Maine Dept of Conservation	\$2,210,000	0.3%
Unit 1: Baxter State Park Authority	\$1,400,000	0.2%
Unit 3: Montana University System	\$725,000	0.1%
Unit 3: Conservation NGO	\$666,000	0.1%
Unit 3: U.S. Fish and Wildlife Service	\$552,000	0.1%
Unit 1: National Park Service	\$303,000	0.0%
Unit 3: U.S. Bureau of Land Management	\$257,000	0.0%
Unit 1: Maine Dept. of Inland Fish & Wildlife	\$255,000	0.0%
Unit 3: Idaho Dept. of Land	\$230,000	0.0%
Unit 4: Washington Dept of Fish and Wildlife	\$20,000	0.0%
Unit 3: U.S. Bureau of Reclamation	\$246	0.0%
Unit 3: Municipal/City Government	\$5	0.0%
Unit 1: U.S. Fish and Wildlife Service	\$0	0.0%
Unit 4: Unknown Private Landowners	\$0	0.0%

EXHIBIT ES-5. SUBUNITS RANKED BY LEVEL OF IMPACT (HIGH END, UNDISCOUNTED)

SUBUNIT	ESTIMATED HIGH END IMPACTS (UNDISCOUNTED)	PERCENT OF TOTAL LOW END IMPACTS (UNDISCOUNTED)
Unit 2: Unknown Landowner	\$766,000,000	46.2%
Unit 1: Private Timber Lands	\$253,000,000	15.2%
Unit 3: Unknown landowner	\$240,000,000	14.5%
Unit 3: Private Timber Lands	\$132,000,000	8.0%
Unit 2: Superior National Forest	\$50,600,000	3.0%
Unit 2: Minnesota Dept. of Natural Resources	\$49,100,000	3.0%
Unit 3: Montana Dept. of Natural Resources	\$44,300,000	2.7%
Unit 1: Unknown Landowner	\$35,600,000	2.1%
Unit 4: Washington Dept of Natural Resources	\$21,100,000	1.3%
Unit 2: Private Timber Lands	\$18,900,000	1.1%
Unit 2: Private Mining Lands	\$13,900,000	0.8%
Unit 1: Maine Dept of Conservation	\$13,600,000	0.8%
Unit 1: Conservation NGO	\$7,090,000	0.4%
Unit 3: Montana University System	\$6,920,000	0.4%
Unit 3: Montana Fish, Wildlife, and Parks	\$2,670,000	0.2%
Unit 1: Baxter State Park Authority	\$1,410,000	0.1%
Unit 3: Conservation NGO	\$1,200,000	0.1%
Unit 3: U.S. Fish and Wildlife Service	\$557,000	0.0%
Unit 1: National Park Service	\$307,000	0.0%
Unit 3: U.S. Bureau of Land Management	\$262,000	0.0%
Unit 1: Maine Dept. of Inland Fish & Wildlife	\$260,000	0.0%
Unit 3: Idaho Dept. of Land	\$230,000	0.0%
Unit 4: Washington Dept of Fish and Wildlife	\$180,000	0.0%
Unit 3: U.S. Bureau of Reclamation	\$246	0.0%
Unit 3: Municipal/City Government	\$163	0.0%
Unit 1: U.S. Fish and Wildlife Service	\$0	0.0%
Unit 4: Unknown Private Landowners	\$0	0.0%

EXHIBIT ES-6. DETAILED IMPACTS TO ALL ACTIVITIES BY SUBUNIT

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UNIT/SUBUNIT	PAST (UNDISCOUNTED)		PAST PRESENT VALUE 3%		PAST PRESENT VALUE 7%		FUTURE (UNDISCOUNTED)		FUTURE PRESENT VALUE 3%		FUTURE PRESENT VALUE 7%		ANNUALIZED 3%		ANNUALIZED 7%	
	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
<i>Proposed Critical Habitat</i>																
UNIT 1: MAINE																
National Park Service	\$0	\$0	\$0	\$0	\$0	\$0	\$303,000	\$307,000	\$247,000	\$250,000	\$192,000	\$194,000	\$16,600	\$16,800	\$18,100	\$18,300
U.S. Fish and Wildlife Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maine Dept of Conservation	\$0	\$0	\$0	\$0	\$0	\$0	\$2,210,000	\$13,600,000	\$2,030,000	\$8,390,000	\$1,820,000	\$9,220,000	\$136,000	\$564,000	\$172,000	\$871,000
Maine Dept. of Inland Fish & Wildlife	\$0	\$0	\$0	\$0	\$0	\$0	\$255,000	\$260,000	\$205,000	\$209,000	\$156,000	\$159,000	\$13,800	\$14,100	\$14,800	\$15,000
Baxter State Park Authority	\$0	\$0	\$0	\$0	\$0	\$0	\$1,400,000	\$1,410,000	\$1,270,000	\$1,280,000	\$1,130,000	\$1,140,000	\$85,600	\$85,900	\$107,000	\$107,000
Private Timber Lands	\$2,150,000	\$2,210,000	\$2,380,000	\$2,450,000	\$2,740,000	\$2,810,000	\$39,000,000	\$253,000,000	\$35,700,000	\$155,000,000	\$32,100,000	\$171,000,000	\$2,300,000	\$10,400,000	\$2,970,000	\$16,100,000
Conservation NGO	\$0	\$0	\$0	\$0	\$0	\$0	\$6,780,000	\$7,090,000	\$3,600,000	\$3,740,000	\$3,090,000	\$3,200,000	\$242,000	\$252,000	\$292,000	\$302,000
Unknown Landowner	\$0	\$0	\$0	\$0	\$0	\$0	\$15,600,000	\$35,600,000	\$12,200,000	\$25,500,000	\$9,210,000	\$21,300,000	\$818,000	\$1,710,000	\$869,000	\$2,010,000
<i>Subtotal Unit 1</i>	<i>\$2,150,000</i>	<i>\$2,210,000</i>	<i>\$2,380,000</i>	<i>\$2,450,000</i>	<i>\$2,740,000</i>	<i>\$2,810,000</i>	<i>\$65,600,000</i>	<i>\$311,000,000</i>	<i>\$55,200,000</i>	<i>\$195,000,000</i>	<i>\$47,700,000</i>	<i>\$206,000,000</i>	<i>\$3,610,000</i>	<i>\$13,000,000</i>	<i>\$4,440,000</i>	<i>\$19,400,000</i>
UNIT 2: MINNESOTA																
Superior National Forest	\$803,000	\$887,000	\$858,000	\$954,000	\$938,000	\$1,050,000	\$10,000,000	\$50,600,000	\$7,570,000	\$26,200,000	\$5,520,000	\$7,030,000	\$509,000	\$1,760,000	\$521,000	\$664,000
Minnesota Dept. of Natural Resources	\$109,000	\$138,000	\$117,000	\$148,000	\$128,000	\$162,000	\$6,450,000	\$49,100,000	\$5,310,000	\$24,700,000	\$4,290,000	\$5,500,000	\$357,000	\$1,660,000	\$405,000	\$519,000
Private Timber Lands	\$0	\$0	\$0	\$0	\$0	\$0	\$17,700,000	\$18,900,000	\$17,600,000	\$18,300,000	\$17,600,000	\$17,900,000	\$540,000	\$577,000	\$1,240,000	\$1,260,000
Private Mining Lands	\$67,500	\$67,500	\$72,800	\$72,800	\$80,500	\$80,500	\$11,900,000	\$13,900,000	\$11,900,000	\$13,900,000	\$11,900,000	\$13,900,000	\$357,000	\$419,000	\$831,000	\$975,000
Unknown Landowner	\$66,500	\$66,500	\$71,700	\$71,700	\$79,300	\$79,300	\$642,000,000	\$766,000,000	\$640,000,000	\$723,000,000	\$638,000,000	\$689,000,000	\$19,600,000	\$23,400,000	\$44,900,000	\$48,500,000
<i>Subtotal Unit 2</i>	<i>\$1,050,000</i>	<i>\$1,160,000</i>	<i>\$1,120,000</i>	<i>\$1,250,000</i>	<i>\$1,230,000</i>	<i>\$1,380,000</i>	<i>\$689,000,000</i>	<i>\$899,000,000</i>	<i>\$683,000,000</i>	<i>\$806,000,000</i>	<i>\$677,000,000</i>	<i>\$734,000,000</i>	<i>\$21,400,000</i>	<i>\$27,800,000</i>	<i>\$47,900,000</i>	<i>\$52,000,000</i>
UNIT 3: NORTHERN ROCKY MOUNTAINS																
U.S. Fish and Wildlife Service	\$0	\$0	\$0	\$0	\$0	\$0	\$552,000	\$557,000	\$494,000	\$498,000	\$438,000	\$441,000	\$23,400	\$23,600	\$34,900	\$35,200
U.S. Bureau of Reclamation	\$0	\$0	\$0	\$0	\$0	\$0	\$246	\$246	\$246	\$246	\$246	\$246	\$7	\$7	\$17	\$17
U.S. Bureau of Land Management	\$68,000	\$68,000	\$73,300	\$73,300	\$81,100	\$81,100	\$257,000	\$262,000	\$202,000	\$207,000	\$150,000	\$153,000	\$13,500	\$13,800	\$14,100	\$14,400
Montana Dept. of Natural Resources	\$306,000	\$306,000	\$336,000	\$336,000	\$381,000	\$381,000	\$44,200,000	\$44,300,000	\$11,600,000	\$11,600,000	\$744,000	\$799,000	\$775,000	\$778,000	\$68,300	\$72,900
Montana Fish, Wildlife, and Parks	\$300	\$501	\$318	\$532	\$344	\$574	\$2,650,000	\$2,670,000	\$2,580,000	\$2,600,000	\$2,520,000	\$2,530,000	\$174,000	\$175,000	\$238,000	\$239,000
Montana University System	\$0	\$0	\$0	\$0	\$0	\$0	\$725,000	\$6,920,000	\$578,000	\$2,100,000	\$445,000	\$501,000	\$38,800	\$141,000	\$42,000	\$47,200
Idaho Dept. of Land	\$0	\$0	\$0	\$0	\$0	\$0	\$230,000	\$230,000	\$182,000	\$258,000	\$135,000	\$272,000	\$12,200	\$17,300	\$12,800	\$25,600
Municipal/City Government	\$0	\$0	\$0	\$0	\$0	\$0	\$5	\$163	\$5	\$163	\$5	\$163	\$0	\$5	\$0	\$11
Private Timber Lands	\$67,000	\$67,000	\$72,200	\$72,200	\$79,900	\$79,900	\$6,420,000	\$132,000,000	\$6,110,000	\$39,200,000	\$5,790,000	\$8,130,000	\$285,000	\$2,340,000	\$464,000	\$574,000
Conservation NGO	\$0	\$0	\$0	\$0	\$0	\$0	\$666,000	\$1,200,000	\$576,000	\$1,100,000	\$490,000	\$1,010,000	\$34,300	\$51,000	\$43,400	\$80,400
Unknown landowner	\$0	\$0	\$0	\$0	\$0	\$0	\$50,700,000	\$240,000,000	\$49,200,000	\$100,000,000	\$47,900,000	\$52,100,000	\$1,750,000	\$4,910,000	\$3,500,000	\$3,730,000
<i>Subtotal Unit 3</i>	<i>\$441,000</i>	<i>\$441,000</i>	<i>\$482,000</i>	<i>\$482,000</i>	<i>\$543,000</i>	<i>\$543,000</i>	<i>\$106,000,000</i>	<i>\$428,000,000</i>	<i>\$71,500,000</i>	<i>\$158,000,000</i>	<i>\$58,600,000</i>	<i>\$66,000,000</i>	<i>\$3,110,000</i>	<i>\$8,450,000</i>	<i>\$4,410,000</i>	<i>\$4,820,000</i>
UNIT 4: NORTH CASCADES																
Washington Dept of Fish and Wildlife	\$60,000	\$60,000	\$66,600	\$66,600	\$76,500	\$76,500	\$20,000	\$180,000	\$19,700	\$134,000	\$19,300	\$94,000	\$1,320	\$8,980	\$1,830	\$8,870
Washington Dept of Natural Resources	\$7,150,000	\$7,150,000	\$7,950,000	\$7,950,000	\$9,140,000	\$9,140,000	\$21,000,000	\$21,100,000	\$21,600,000	\$21,600,000	\$22,400,000	\$22,400,000	\$1,450,000	\$1,450,000	\$2,110,000	\$2,110,000
Unknown Private Landowners	\$9,500	\$9,500	\$10,200	\$10,200	\$11,300	\$11,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Subtotal Unit 4</i>	<i>\$7,220,000</i>	<i>\$7,220,000</i>	<i>\$8,030,000</i>	<i>\$8,030,000</i>	<i>\$9,230,000</i>	<i>\$9,230,000</i>	<i>\$21,100,000</i>	<i>\$21,200,000</i>	<i>\$21,600,000</i>	<i>\$21,800,000</i>	<i>\$22,400,000</i>	<i>\$22,500,000</i>	<i>\$1,450,000</i>	<i>\$1,460,000</i>	<i>\$2,110,000</i>	<i>\$2,120,000</i>
SUBTOTAL AREAS PROPOSED FOR DESIGNATION	\$10,900,000	\$11,000,000	\$12,000,000	\$12,200,000	\$13,700,000	\$14,000,000	\$882,000,000	\$1,660,000,000	\$831,000,000	\$1,180,000,000	\$806,000,000	\$1,030,000,000	\$29,600,000	\$50,700,000	\$58,900,000	\$78,300,000

EXHIBIT ES-6. DETAILED IMPACTS TO ALL ACTIVITIES BY SUBUNIT (CONTINUED)

Final Economic Analysis - October 31, 2006

UNIT/SUBUNIT	PAST (UNDISCOUNTED)		PAST PRESENT VALUE 3%		PAST PRESENT VALUE 7%		FUTURE (UNDISCOUNTED)		FUTURE PRESENT VALUE 3%		FUTURE PRESENT VALUE 7%		ANNUALIZED 3%		ANNUALIZED 7%	
	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
<i>Areas Considered for Exclusion</i>																
<i>UNIT 1: MAINE</i>																
Tribal lands	\$60,800	\$60,800	\$64,900	\$64,900	\$70,800	\$70,800	\$283,000	\$2,380,000	\$231,000	\$1,210,000	\$187,000	\$912,000	\$15,600	\$81,200	\$17,700	\$86,100
<i>Subtotal Unit 1</i>	<i>\$60,800</i>	<i>\$60,800</i>	<i>\$64,900</i>	<i>\$64,900</i>	<i>\$70,800</i>	<i>\$70,800</i>	<i>\$283,000</i>	<i>\$2,380,000</i>	<i>\$231,000</i>	<i>\$1,210,000</i>	<i>\$187,000</i>	<i>\$912,000</i>	<i>\$15,600</i>	<i>\$81,200</i>	<i>\$17,700</i>	<i>\$86,100</i>
<i>UNIT 2: MINNESOTA</i>																
Voyageurs National Park	\$60,100	\$60,100	\$66,400	\$66,400	\$75,700	\$75,700	\$1,100,000	\$1,110,000	\$995,000	\$1,000,000	\$885,000	\$890,000	\$66,900	\$67,400	\$83,500	\$84,000
Tribal Lands	\$85,500	\$85,500	\$92,200	\$92,200	\$102,000	\$102,000	\$1,530,000	\$2,430,000	\$1,170,000	\$1,860,000	\$870,000	\$1,380,000	\$78,800	\$125,000	\$82,100	\$130,000
<i>Subtotal Unit 2</i>	<i>\$146,000</i>	<i>\$146,000</i>	<i>\$159,000</i>	<i>\$159,000</i>	<i>\$178,000</i>	<i>\$178,000</i>	<i>\$2,630,000</i>	<i>\$3,540,000</i>	<i>\$2,170,000</i>	<i>\$2,860,000</i>	<i>\$1,750,000</i>	<i>\$2,270,000</i>	<i>\$146,000</i>	<i>\$192,000</i>	<i>\$166,000</i>	<i>\$214,000</i>
<i>UNIT 3: NORTHERN ROCKY MOUNTAINS</i>																
Glacier National Park	\$958,000	\$1,260,000	\$1,030,000	\$1,360,000	\$1,140,000	\$1,510,000	\$6,720,000	\$6,970,000	\$6,070,000	\$6,260,000	\$5,410,000	\$5,560,000	\$408,000	\$421,000	\$511,000	\$524,000
BLM: Butte Resource Area	\$0	\$0	\$0	\$0	\$0	\$0	\$256,000	\$260,000	\$230,000	\$233,000	\$202,000	\$204,000	\$15,500	\$15,600	\$19,100	\$19,300
<i>Subtotal Unit 3</i>	<i>\$958,000</i>	<i>\$1,260,000</i>	<i>\$1,030,000</i>	<i>\$1,360,000</i>	<i>\$1,140,000</i>	<i>\$1,510,000</i>	<i>\$6,970,000</i>	<i>\$7,230,000</i>	<i>\$6,300,000</i>	<i>\$6,500,000</i>	<i>\$5,620,000</i>	<i>\$5,760,000</i>	<i>\$424,000</i>	<i>\$437,000</i>	<i>\$530,000</i>	<i>\$544,000</i>
<i>UNIT 4: NORTH CASCADES</i>																
North Cascades National Park	\$141,000	\$141,000	\$151,000	\$151,000	\$164,000	\$164,000	\$550,000	\$550,000	\$476,000	\$476,000	\$401,000	\$401,000	\$32,000	\$32,000	\$37,900	\$37,900
Lake Chelan National Recreation Area	\$0	\$0	\$0	\$0	\$0	\$0	\$433,000	\$433,000	\$367,000	\$367,000	\$302,000	\$302,000	\$24,700	\$24,700	\$28,500	\$28,500
<i>Subtotal Unit 4</i>	<i>\$141,000</i>	<i>\$141,000</i>	<i>\$151,000</i>	<i>\$151,000</i>	<i>\$164,000</i>	<i>\$164,000</i>	<i>\$983,000</i>	<i>\$983,000</i>	<i>\$844,000</i>	<i>\$844,000</i>	<i>\$703,000</i>	<i>\$703,000</i>	<i>\$56,700</i>	<i>\$56,700</i>	<i>\$66,400</i>	<i>\$66,400</i>
SUBTOTAL AREAS CONSIDERED FOR EXCLUSION	<i>\$1,310,000</i>	<i>\$1,610,000</i>	<i>\$1,410,000</i>	<i>\$1,740,000</i>	<i>\$1,560,000</i>	<i>\$1,920,000</i>	<i>\$10,900,000</i>	<i>\$14,100,000</i>	<i>\$9,540,000</i>	<i>\$11,400,000</i>	<i>\$8,260,000</i>	<i>\$9,640,000</i>	<i>\$641,000</i>	<i>\$767,000</i>	<i>\$780,000</i>	<i>\$910,000</i>